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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,032	07/27/2005	Alfred Hofrichter	264743US0PCT	8796
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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
SMITH, FRANCIS P				
ART UNIT		PAPER NUMBER		
1792				
NOTIFICATION DATE		DELIVERY MODE		
07/17/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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# Office Action Summary

**Application No.**

10/523,032

**Applicant(s)**

HOFRICHTER ET AL.

**Examiner**

Francis P. Smith

**Art Unit**

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

## DETAILED ACTION

### *Response to Arguments*

1. Applicants' arguments filed April 30, 2009 have been fully considered but they are not persuasive.

Applicants argue that "while Yang may disclose determining a coating temperature based on a glass transition temperature of a substrate, Yang does not disclose determining a coating temperature based on a maximum usage temperature of the substrate" (see remarks, pg. 2, second paragraph). The examiner respectfully disagrees. Yang states on page 2 (lines 56-58) that the coating process must be **operative at temperatures below the thermal damage threshold, generally the glass transition temperature, of the plastic substrate."** Thus, Yang teaches that it would have been obvious to a person having ordinary skill in the art **to determine** a maximum temperature that the substrate may withstand before said substrate is damaged (e.g. a maximum substrate usage temperature).

Furthermore, Applicants admit that the maximum usage temperature depends on the application of the substrate (see remarks, pg. 3, first paragraph). Therefore, it would have been well within the level of ordinary skill in the art at the time of the invention to determine the maximum usage/thermal damage threshold temperature per application. It is the examiner's position that the maximum usage temperature is a result effective variable and that determining the specific temperature per application would require merely routine skill in the art at the time of the invention. A temperature higher than the maximum usage temperature would destroy the substrate with respect to a particular

application. Furthermore, while lacking a notification of criticality of a specific temperature/application, the discovery of optimum values of result effective variables in known processes would have been obvious to a person of ordinary skill in the art at the time of the invention in the absence of unexpected results. Consult *In re Boesch and Slaney* (205 USPQ 215 (CCPA 1980)).

Therefore, the rejection of the previous office action is deemed proper and is maintained.

### ***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. (EP 0887437).

For claims 1-2, Yang teaches a method for depositing a protective coating on a substrate by high rate arc plasma deposition (i.e. plasma CVD as per claim 2). Specifically, the method entails forming an abrasion-resistant coating onto a plastic substrate by plasma deposition (pg. 2, lines 7-11, 24-29, 56-58; pg. 3, line 1). Yang determined the thermal damage temperature for a transparent plastic (polycarbonate) substrate is approximately 135°C (page 3, line 1). The process is conducted at temperatures 20°C below the thermal damage/glass transition temperature, which is below the maximum temperature of usage (e.g. determining a minimum coating

temperature comprises identifying a temperature greater than or equal to a temperature 20°C less than the maximum usage temperature) (pg. 2, lines 7-11, 24-29, 56-58; pg. 3, line 1). Yang does not expressly state a step of determining a maximum usage temperature is at least 90°C, however, Yang discloses the importance of depositing the protective film at a temperature certain temperature (e.g. 20°C below the thermal damage threshold), which would also be below a maximum usage temperature. Therefore, it would have been well within the level of ordinary skill in the art at the time of the invention to determine the maximum usage temperature of a polycarbonate substrate as per a particular application in order to deposit a protective coating without thermally damaging the substrate. Furthermore, it would have been extremely well known in the art at the time of the invention to determine the optimum usage/coating temperatures depending on the grade of polycarbonate/specific application, since it has been held where in the absence of notification of criticality and the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

As per the varying coating temperatures of claims 3-5, it would have been well within the level of ordinary skill in the art to optimize the coating temperature depending on the specific type of substrate and coating material used. Thus, it is noted that this parameter is considered result effective. Low coating temperatures will affect film uniformity and thickness, whereas excessive temperatures would pyrolyze the substrate/coating material. Furthermore, while lacking a notification of criticality or substantial evidence, the discovery of optimum values of result effective variables in

known processes would have been obvious to a person of ordinary skill in the art at the time of the invention in the absence of unexpected results. Consult *In re Boesch and Slaney* (205 USPQ 215 (CCPA 1980)).

Regarding claim 6, Yang discloses a deposition time ranging from several seconds to several minutes and includes an oxygen plasma post treatment lasting 0-10 seconds before the plasma is extinguished. Once the plasma is extinguished, the substrate will necessarily cool. Furthermore, the substrates were subsequently placed in a water bath after deposition (e.g. cooling means) (pg. 5, line 53; pg. 6, lines 42-43).

For claim 7, Yang teaches exposing the substrate to a first gas for a first time period, then exposing the substrate to a second gas for a second time period (i.e. forming a coating in several stages) (pg. 6, lines 36-38).

As per claim 9, Yang discloses heating the substrate (i.e. polycarbonate) to 400°C (i.e. at least 120°C) (pg. 6, lines 20-25).

3. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. (EP 0887437) in view of Hunt et al. (WO 01/02622A2).

For claim 8, Yang teaches a method for depositing a protective coating by high rate arc plasma deposition. The process is conducted at temperatures below the thermal damage threshold, at a temperature at least 20°C below the thermal damage/glass transition temperature (i.e. stabilizing the substrate to be coated at a temperature at least equal to the maximum temperature of use of the coated substrate minus 20°C ) (pg. 2, lines 56-58; pg. 3, line 1). Yang does not teach forming the coating

while ensuring that the temperature does not exceed the temperature at which the plastic weakens, or the repetition of steps.

Hunt discloses methods for producing coatings on a glass substrate (i.e. any material that can crack, break, or otherwise be damaged). Hunt notes that temperature differentials will create internal stress and ultimately break or shatter the substrate. These differentials may be alleviated by allowing the substrate to recover between subsequent coatings (i.e. taking care that the temperature of the substrate does not reach the temperature at which the plastic weakens). This temperature control allows for multiple exposures to the flame (i.e. carrying out operations a and b) (pg. 12, lines 11-28). Furthermore, Hunt discloses the use of a flame arrangement where the coating flames are arranged in a line. This allows the substrate to recover between flames, stabilizing the substrate, yet providing multiple coatings (e.g. a repetition of steps) of the same or different material to a desired thickness (pg. 13, lines 9-30). Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate Hunt's temperature controlled, coat-forming flame line in Yang's method in order to successfully coat a plastic substrate while minimizing internal stress.

***Claim Rejections - 35 USC § 102/103***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claim 10 is rejected under 35 U.S.C. 102 (b) as anticipated by or, in the alternative, under 35 U.S.C. 103 (a) as obvious in view of Yang et al. (EP 0887437).

Regarding claim 10, Yang teaches a coated, transparent plastic substrate wherein the thickness of the coating is at least 2 $\mu$ m (pg. 4, lines 25-26, 51-53). Because of the nature of product-by-process claims, the Examiner cannot ordinarily focus on the precise difference between the claimed product and the disclosed product. It is then Applicants' burden to prove that an unobvious difference exists. See *In re Marosi*, 218 USPQ 289,292-293 (CAFC 1983). See also footnote 11 O.G. Notice 1162 59-61, wherein a 35 USC 102/103 rejection is authorized in the case of product-by-process claims because the exact identity of the claimed product or the prior art product cannot be determined by the Examiner. See also *In re Thorpe*, 227 USPQ 964 (CAFC 1985).

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. (EP 0887437) in view of Reed et al. (WO 89/01957).

Regarding claim 12, Yang does not teach a vehicle body part, a vent, or a window comprising said product.



Reed teaches abrasion resistant articles. Specifically, Reed discloses that polycarbonates, used for their excellent breakage resistance, are treated for abrasion resistance for use in polycarbonates having abrasion resistant layer (see Reed pg. 1, lines 7-16; pg. 3, lines 14-29). Therefore, since Reed discloses that polycarbonates, used for their excellent breakage resistance, are treated for abrasion resistance for use in automobile headlamps, stoplight lenses, and safety shields in windows and Yang teaches polycarbonates having an abrasion resistant layer, it would be obvious to utilize the polycarbonates having the abrasion resistant layer of Yang in the automobile headlights of Reed with the reasonable expectation of success.

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Francis P. Smith whose telephone number is (571) 270-3717. The examiner can normally be reached on Monday through Thursday 7:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mikhail Kornakov can be reached on (571) 272-1303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/F. P. S./  
Examiner, Art Unit 1792  
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Supervisory Patent Examiner, Art Unit 1792